

AMENDMENT TO THE CLAIMS

1. (currently amended) A payment processing gateway server for processing financial transactions comprising:

- a public network interface configured to couple to a public network and receive first financial transaction authorization requests, the first financial transaction authorization requests received from merchants and include transaction specific data, merchant and or store related data which is related to a merchant generating the authorization request and a supplemental header, wherein the supplemental header includes a contract identification field which identifies a contract with a payment provider;
- a gateway memory that includes a listing of valid contract identifications, wherein the gateway memory includes a cache of merchant or store/location invariant data and wherein the financial transaction authorization requests include a cache-key which identifies data in the cache, wherein the cache-key comprises a 128 bit data field, wherein the financial authorization requests include a cacheable data field and wherein the gateway processor populates the cache contained in the memory with data received in the cacheable data field;
- a gateway processor configured to process the first financial transaction authorization requests received through the public network interface based upon a comparison of data in the contract identification field to the listing of valid contract identifications, wherein the gateway processor is further configured to reject the first financial transaction authorization requests based on a determination that the data in the contract identification field does not match a valid contract identification in the listing of valid contract identifications;
- a financial network interface configured to couple to at least one financial network and transmit second financial transaction authorization requests to a financial institution coupled to the at least one financial network based upon the first financial transaction authorization requests, the financial network interface further

configured to receive first financial transaction authorization results from the financial institution; ~~and~~

the public network interface further configured to send second financial transaction authorization results to merchants in response to the first financial transaction authorization results; and

wherein the payment processing gateway server is implemented in a plurality of servers, a portion of the plurality of servers being web servers in a web cluster and at least one of the plurality of servers being a shared server, the web servers accessing state information from the shared server, the shared server maintaining cache consistency and replication across the web servers.

2. (currently amended) The apparatus of claim 1 wherein configured to reject comprises the gateway processor configured to send a transaction response that includes a transaction header field and a response data field, wherein the transaction header field identifies a particular transaction, and wherein the web servers and the shared server exchange data utilizing objects.

3. (previously presented) The apparatus of claim 1 wherein the gateway server sends a NACK message to a merchant through the public network interface if the data in the contract identification field does not match the valid contract identifications contained in memory.

4. (previously presented) The apparatus of claim 1 wherein the gateway server sends an ACK message to a merchant through the public network interface if the data in the contract identification field matches a valid contract identification contained in memory.

5. (currently amended) The apparatus of claim ~~1~~2 wherein the contract identification field comprises two bytes of 8 data bits each.

6. (currently amended) The apparatus of claim ~~4~~5 wherein the gateway memory includes log data related to data carried in the contract identification field of supplemental headers received from a plurality of first financial transaction authorization requests.

7-9. (canceled)

10. (currently amended) The apparatus of claim ~~4~~6 wherein the gateway processor maintains an open socket connection with a financial institution throughout the financial network interface during processing of a financial transaction authorization request.

11. (currently amended) The apparatus of claim ~~4~~6 wherein the supplemental header includes a payment type field.

12. (currently amended) The apparatus of claim ~~4~~11 wherein the first financial transaction authorization requests are in accordance with an HTTPS standard.

13. (currently amended) The apparatus of claim ~~4~~11 wherein the first financial transaction authorization requests are in accordance with an XML standard.

14. (currently amended) The apparatus of claim ~~4~~11 wherein the first financial transaction authorization requests are transmitted through a secure socket layer.

15. (currently amended) The apparatus of claim ~~4~~11 wherein an ACK transmission through the public network interface by the gateway server to a merchant does not precede a transmission of an authorization result.

16. (canceled)

17. (currently amended) A payment processing gateway server for processing financial transactions comprising:

- a public network interface configured to couple to a public network and receive first financial transaction authorization requests, the first financial transaction authorization requests received from merchants and include transaction specific data, merchant and/or related data which is related to a merchant generating the authorization request, a supplemental header, and a cache-key field;
- a gateway memory that includes a cache of merchant or store/location invariant data, wherein the merchant or store/location invariant data includes a merchant name, a location, a merchant category code, and an acquirer bin;
- a gateway processor configured to retrieve the merchant or store/location invariant data based upon the cache-key field and configured to process first financial transaction authorization requests received through the public network interface based upon the supplemental header;
- a financial network interface configured to couple to at least one financial network and transmit second financial transaction authorization requests to a financial institution coupled to the at least one financial network based upon first financial transaction authorization requests, the financial network interface further configured to receive first financial transaction authorization results from the financial institution; ~~and~~
- the public network interface further configured to send second financial transaction authorization results to merchants in response to the first financial transaction authorization results;
- wherein the supplemental header includes a payment type identification field which identifies a financial network coupled to the financial network interface for processing the first financial transaction authorization request;
- wherein the payment processing gateway server is implemented in a plurality of web servers; and

a web server front end that directs multiple web requests from one particular Internet Protocol address to the same web server.

18. (currently amended) The apparatus of claim 17 wherein the payment type identification field identifies a transaction type, payment network and/or protocol and wherein the web server front end directs multiple web requests from one particular Internet Protocol address to the same web server for a set period of time.

19. (canceled)

20. (currently amended) The apparatus of claim ~~17~~18 further comprising:  
a back end server process that maintains an open payment socket to the at least one financial network; and  
wherein the payment type identification field describes a protocol format of the transaction specific data.

21. (currently amended) The apparatus of claim ~~17~~20 wherein the supplemental header further includes a contract identification field which identifies a contract with a payment provider.

22. (canceled)

23. (currently amended) The apparatus of claim ~~17~~21 wherein the financial transaction authorization requests include a cacheable data field and wherein the gateway processor populates the cache contained in the memory with data received in the cacheable data field.

24. (currently amended) The apparatus of claim ~~17~~23 wherein the cache-key comprises a 128 bit data field.

25. (canceled)

26. (currently amended) The apparatus of claim ~~25~~24 wherein the open payment socket comprises an SSL connection.

27. (canceled)

28. (currently amended) The apparatus of claim ~~17~~24 wherein the first financial transaction authorization requests are in accordance with an HTTPS standard and wherein the web server front end is implemented as software.

29. (currently amended) The apparatus of claim ~~17~~24 wherein the first financial transaction authorization requests are in accordance with an XML standard and wherein the web server front end is implemented as hardware.

30. (currently amended) The apparatus of claim ~~17~~24 wherein the first financial transaction authorization requests are transmitted through a secure socket layer.

31. (currently amended) The apparatus of claim ~~17~~24 wherein an ACK transmission through the public network interface by the gateway server to a merchant does not precede an transmission of an authorization result.

32. (canceled)

33. (currently amended) A payment processing gateway server for processing financial transactions comprising:

a public network interface configured to couple to a public network and receive first financial transaction authorization requests, the first financial transaction authorization requests received from merchants and which include transaction specific data, cache-able data and a cache key, wherein the cache key comprises data indicative of a merchant and data indicative of a store, wherein the data indicative of a merchant comprises 12 bytes and the data indicative of a store comprises 4 bytes;

a gateway memory comprising volatile memory, the gateway memory configured to cache the cache-able data from the first financial authorization requests and index the cache in accordance with the cache key, the gateway memory further configured to restore the cache-able data upon a failure by utilizing a database;

a gateway processor configured to retrieve the cache-able data from the gateway memory based upon the cache key and configured to process the first financial transaction authorization requests received through the public network interface based upon a supplemental header;

a financial network interface configured to couple to ~~at least one~~ a plurality of financial networks and transmit second financial transaction authorization requests to a plurality of financial institutions coupled to the ~~at least one~~ plurality of financial networks based upon first financial transaction authorization requests, the financial network interface further configured to receive first financial transaction authorization results from the financial institutions; and

the public network interface further configured to send second financial transaction authorization results to merchants in response to the first financial transaction authorization results.

34. (original) The apparatus of claim 33 wherein the cache key comprises 128 bits of data.

35. (original) The apparatus of claim 34 wherein the cache key comprises a GUID (Globally Unique Identifier).

36. (canceled)

37. (currently amended) The apparatus of claim ~~33~~35 wherein the cache-able data includes data selected from the group of data consisting of merchant name, country, state, location, zip code, merchant category and time zone.

38. (currently amended) The apparatus of claim ~~33~~37 wherein the gateway processor provides a web service on the public network interface.

39. (currently amended) The apparatus of claim 38 wherein the web service maintains state for first financial transaction authorization requests and wherein the web service is provided by ASP.NET.

40. (currently amended) The apparatus of claim ~~33~~37 wherein the gateway processor operates in accordance with a common language run time environment.

41. (currently amended) The apparatus of claim ~~33~~37 wherein the database is a SQL server and wherein the including a database to duplicates data maintained in the cache and thereby to provide a data backup.

42. (currently amended) The apparatus of claim 39 ~~including a~~wherein the database is configured to maintain the state.

43. (original) The apparatus of claim 39 including a plurality of gateway processors configured to form a web cluster.



44. (original) The apparatus of claim 43 including a director configured to direct first financial transaction authorization requests from a specific merchant to a specific gateway processor.

45. (canceled)

46. (currently amended) The apparatus of claim ~~33~~37 wherein following a reset of the database, the gateway processor transmits a request message to merchants through the public network interface which requests a transmission of cache-able data for populating the cache contained in the volatile memory and for re-populating the database.

47. (currently amended) The apparatus of claim ~~33~~37 wherein the financial transaction authorization request includes a supplemental header containing a contract identification field.

48. (currently amended) The apparatus of claim ~~33~~47 wherein the financial transaction authorization request includes a supplemental header containing a payment type identification field.

49. (currently amended) The apparatus of claim ~~33~~48 wherein the first financial transaction authorization requests are in accordance with an HTTPS standard.

50. (currently amended) The apparatus of claim ~~33~~48 wherein the first financial transaction authorization requests are in accordance with an XML standard.

51. (currently amended) The apparatus of claim ~~33~~48 wherein the first authorization requests are transmitted through a secure socket layer.

52. (currently amended) The apparatus of claim ~~33-48~~ wherein the gateway processor processes financial transaction authorization requests using a stateless logic implementation and the gateway processor further synchronizes socket sessions with financial institutions through the financial network interface.

53-57. (canceled)

58. (currently amended) A payment processing gateway server for processing debit type financial transactions comprising:

- a public network interface configured to couple to a public network and receive first financial transaction authorization requests, the first financial transaction authorization requests received from merchants and include transaction specific data, and merchant and/or store related data which is related to a merchant generating the authorization requests;

- a gateway processor configured to process the first financial transaction authorization requests received through the public network interface, wherein operation of the gateway processor on the first financial transaction authorization requests is stateless, wherein the gateway processor implements a socket based protocol, and wherein the gateway processor utilizes ~~maintains~~ a server thread to maintain socket sessions with the merchant and with a financial institution;

- a financial network interface configured to couple to at least one financial network and transmit second financial transaction authorization requests to ~~a~~ the financial institution coupled to the at least one financial network based upon the first financial transaction authorization requests, the financial network interface further configured to receive first financial transaction authorization results from the financial institution;

- the public network interface further configured to send second financial transaction authorization results to merchants in response to the first financial transaction authorization results; and

the financial network interface further configured to send an acknowledgement to the financial institution independently of receipt of an acknowledgement from the merchant in response to the second financial authorization results.

59. (currently amended) The apparatus of claim 58 wherein the gateway processor is configured to recognize a duplicate financial transaction authorization request from the merchant within a time limit and wherein the gateway processor transmits a message to the merchant in response to the duplicate message.

60. (currently amended) The apparatus of claim 59 wherein the ~~gateway processor transmits a message to the merchant in response to the duplicate message~~ socket session with the financial institution is on a back end common server, wherein the socket session with the merchant is on a front end web server, and wherein the socket session with the financial institution is uniquely identified to the front end web server utilizing a Global Unique Identifier.

61. (currently amended) The apparatus of claim 58 wherein the gateway processing~~ing~~or sends an acknowledgement to the financial institution.

62-67. (canceled)

68. (new) A method of authorizing a financial transaction, the method comprising:

receiving a first authorization request from a point of sale device, the first authorization request including a first transaction specific data field, a first cache key field, a first cacheable data field, and a first supplemental header field, the first cacheable data field including merchant data, the first supplemental header including a first contract ID field that is used as a key to index a database and a payment type field that is used to identify a particular financial network;

accessing a list of valid contract IDs utilizing the first contract ID field;

uniquely identifying a particular store submitting the first authorization request utilizing the first cache key field;

caching the merchant data in a volatile memory component of a payment processing gateway;

sending a first authorization transmission in response to the first authorization request, the first authorization transmission including a transaction identification field and a response data field, the transaction identification field identifying a particular financial transaction to which the first authorization transmission is applicable, the response field indicating a response to the first authorization request, wherein the response is selected from the group consisting of “authorized,” “declined,” “hold card,” “cut card,” “bad card,” “call issuer for further information,” and “request additional information from the purchaser”;

receiving a second authorization request from the point of sale device, the second authorization request including a second transaction specific data field and a second cache key field; and

retrieving the merchant data from the volatile memory component utilizing the second cache key field.

69. (new) The method of claim 68 wherein the first supplemental header identifies a financial contract and terms of operation for a particular acquiring bank and a payment gateway provider.

70. (new) The method of claim 69 wherein the point of sale device is a retail server system that is used to connect multiple point of sale devices.

71. (new) The method of claim 70 further comprising the retail server system providing inventory control and theft protection.

72. (new) The method of claim 71 wherein accessing a list of valid contract IDs comprises accessing an in-memory hash table.

73. (new) The method of claim 72 wherein the first authorization transmission includes a request for the point of sale device to transmit cacheable data to populate a cache.

74. (new) The method of claim 73 further comprising:

auditing financial transaction processed by a payment process gateway utilizing the first contract ID field; and

utilizing the audit to ensure that merchants using the payment process gateway are properly charged.

75. (new) The method of claim 74 wherein the merchant data comprises a merchant name, a country, a state, a location, a city code/zip code, a merchant category, an acquirer bin, a time zone differential, a merchant category code, and an extra field separator.